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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,624	03/05/2002	Zhigang Qi	HPC-120	8207
41245	7590	09/10/2004	EXAMINER	
MARK LEVY & ASSOCIATES, PLLC PRESS BUILDING, SUITE 902 19 CHENANGO STREET BINGHAMTON, NY 13901			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,624

Applicant(s)

QI ET AL.

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-14. Claims 1-6, 8, and 10-14 remain rejected over the prior art for substantially the reasons of record, and additionally, claims 1-14 are newly rejected under 35 USC §112, first paragraph as necessitated by amendment. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 has been amended to recite “a fuel containing a secondary alcohol and absent an acid.” This language is not believed to be adequately supported by the originally-filed application. On page 3, the instant specification states that “[c]orrosion of cell materials becomes less severe since the fuel and water solution is free from sulfuric acid.” However, it is first noted that this disclosure is concerned with sulfuric acid specifically and not acids in a

broader sense. Second, this disclosure is contained solely in a discussion of the background art. There does not appear to be any indication or appreciation in the rest of the specification (i.e., the portions concerned with the present invention) that an acid should not be present in the fuel stream. As such, it is believed that the application does not fairly convey that Applicants had possession of the invention now recited in claim 1 at the time the application was filed.

Claim Rejections - 35 USC § 102

4. Claims 1-5, 8, and 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Peled et al (U.S. Patent 6,492,047). The reference teaches a direct oxidation fuel cell in column 3, line 40. Regarding claims 4, 5, and 8, the fuels may comprise glycerol, isopropyl alcohol (2-propanol), and ethylene glycol, among others. Regarding claims 10-13, the fuel cell comprises a NAFION[®] proton exchange membrane (see Example 6). Regarding claim 1, the aqueous fuel solution does not contain an acid when the above-noted alcohols are used as the fuel (see Example 6).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peled et al in view of Edlund et al (U.S. Patent 6,383,670).

Peled et al. is applied to claims 1-5, 8, and 10-13 for the reasons stated above. However, Peled et al. does not expressly teach that the fuel may comprise propylene glycol, as recited in claim 6.

Edlund is directed to a fuel cell and a fuel processor. In column 2, line 25, the reference discloses fuels that are “suitable” for supplying to the fuel processor, including methanol, ethanol, ethylene glycol and propylene glycol.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of Edlund indicates that propylene glycol is a suitable material for use as a fuel in a fuel cell. The selection of a known material based on its suitability for its intended use has generally been held to be *prima facie* obvious (MPEP §2144.07). As such, it would be obvious to use propylene glycol in the fuel cell of Peled et al.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peled et al in view of Stimming et al (U.S. Pre-Grant Publication No. 2003/0022033).

Peled et al. is applied to claims 1-5, 8, and 10-13 for the reasons stated above. However, Peled et al. does not expressly teach that the fuel cell comprises means for eliminating anode poisons by periodically applying a positive voltage, as recited in claim 14.

Stimming et al. is directed to a fuel cell system comprising a signal generator for periodically applying a positive voltage to eliminate anode poisons (see abstract).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the signal generator of Stimming et al. in the fuel cell of Peled et al. As disclosed in the abstract of Stimming et al., power losses caused by CO adsorption are reduced by the application of the voltage pulses. Accordingly, the artisan would be motivated to use the signal generator of Stimming et al. in the fuel cell of Peled et al.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-4 and 10-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of copending Application No. 10/187,082 (U.S. Pre-Grant Publication No. 2004/0001979). Although the conflicting claims are not identical, they are not patentably distinct from each other because the

claims of the '082 application anticipate the instant claims. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

9. Applicant's arguments filed June 28, 2004 have been fully considered but they are not persuasive. Applicants assert that the Peled reference teaches fuel cells that contain acids in either the fuel mixture or the proton-conducting membrane. However, it is submitted that Example 6 of the reference discloses a fuel cell containing a fuel stream that is free of acid. Furthermore, this fuel cell appears to be an embodiment of the invention of Peled (as opposed to, i.e., being a comparative example or prior art example). As such, it is still believed that Peled teaches an acid-free fuel stream as recited in claim 1.

Further, regarding the amendatory language of claim 1, the language is interpreted herein as requiring an acid-free fuel stream only. Applicants assert that the language excludes acid from being present in both the fuel stream *and* the membrane, but the language of claim 1 is not the same as the language cited by applicants on page 5, second full paragraph, of the response ("[c]laim 1 has been amended to recite 'producing electrical current through the oxidation of a fuel containing a secondary alcohol and absent an acid in both said membrane elements and said fuel'"). Even if claim 1 were to be amended to recite the above-noted language, it is submitted that this would also represent new matter. It is submitted that the instant application does not

contemplate excluding acid from the membrane of the present invention. As set forth in the 112, first paragraph rejection above, the only mention of acids in a negative light occurs in the background art section of the specification. Furthermore, there is a question as to what is meant by the term “acid” in regards to the electrolyte membrane. At page 11, line 8, the specification expressly discloses a NAFION[®] 112 membrane for use in the present invention. This material may be considered to be an “acid” because it comprises sulfonic acid groups. As such, the specification is not seen to properly support a recitation--or an intended recitation--of excluding acid from the membrane.

Allowable Subject Matter

10. Claims 7 and 9 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if the rejection under 35 USC §112 was obviated.

11. The following is a statement of reasons for the indication of allowable subject matter:

The reasons for allowance of claims 7 and 9 were set forth in the previous Office action and remain applicable herein.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

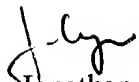
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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Jonathan Crepeau
Patent Examiner
Art Unit 1746
September 7, 2004